

TECHNOLOGY NEEDS/OPPORTUNITIES STATEMENT

IMPROVED METHODS FOR DEBRIS HANDLING AND SEGREGATION

Identification No.: RL-SS20

Date: September 2001

Program: Environmental Restoration

OPS Office/Site: Richland Operations Office/Hanford Site

Operable Unit(s): All burial ground sites in the 100 and 300 Areas

PBS No.: RL-RC01 (RL-ER01), RL-RC02 (RL-ER03), RL-RS01 (RL-ER03)

Waste Stream: Disposition Map Designations: ER-06 [technical risk score 4], ER-08 [technical risk score 4], ER-05 [technical risk score 4], ER-01 [technical risk score 4], ER-02 [technical risk score 4], T3-ER [technical risk score 5]

TSD Title: N/A

Waste Management Unit (if applicable): N/A

Facility: N/A

Priority Rating:

This entry addresses the "Accelerated Cleanup: Paths to Closure (ACPC)" priority:

- ☐ 1. Critical to the success of the ACPC
- ☒ 2. Provides substantial benefit to ACPC projects (e.g., moderate to high lifecycle cost savings or risk reduction, increased likelihood of compliance, increased assurance to avoid schedule delays)
- ☐ 3. Provides opportunities for significant, but lower cost savings or risk reduction, and may reduce uncertainty in ACPC project success

Need Title: Improved Methods for Debris Handling and Segregation

Need/Opportunity Category: Technology Need

Need Description: A large number of waste burial grounds will be excavated and disposed on site. Improved methods are needed for handling and segregating waste debris that requires further characterization or size reduction prior to disposal.

Schedule Requirements:

Earliest Date Required: 8/1/99

Latest Date Required: 9/30/12

Burial grounds exist in the 100 and 300 Areas. The first burial ground excavation (located in the 300 Area) began in FY98. The schedule for excavation of burial grounds in the 100 and 300 Areas is uncertain.

Problem Description: Hanford's burial grounds and liquid waste disposal sites contain a variety of solid waste debris that may require special handling, size reduction, and/or further characterization (e.g. to confirm that the item should not be classified as TRU waste) prior to disposal. Specific examples of problems associated with handling debris waste include:

- (1) Drummed pyrophoric wastes that require overpacking in non-hazardous mineral oil while awaiting final treatment disposition.
- (2) Drummed acid and chemical waste that required sampling to determine the required level of personal protective equipment.
- (3) Pipes greater than 18" in diameter that must be sliced along their axis to meet waste disposal criteria. These disposal criteria help assure that voids are not left in the disposal cells that could result in waste settling and closure cap instabilities.
- (4) Tar/asbestos coatings on pipes that must be scraped off and handled as asbestos waste.
- (5) Large pieces of concrete need to be demolished to facilitate excavation, transport, and disposal

These operations reduce excavation efficiencies and increase costs. Improved methods for dealing with these and other debris handling issues that will arise in future operations are required.

Benefit to the Project Baseline of Filling Need: Technologies appropriate for handling problematic debris need to be identified to support the project baseline.

Functional Performance Requirements: Technology must reduce inefficiencies and costs associated with handling solid debris.

Work Breakdown

Structure (WBS) No. : 1.4.03.1.1 (RL-RC01)
1.4.03.1.2 (RL-RC02)
1.4.03.2.1 (RL-RS01)

TIP No.: TIP 0001, TIP 0003

Relevant PBS Milestone: PBS-MC-026, PBS-MC-028

Justification For Need:

Technical: The wide variety of wastes placed in burial grounds is likely to require several different or very robust handling/segregation technologies.

Regulatory: There is no regulatory requirement for this technology need.

Environmental Safety and Health: Improved handling of waste debris may reduce the potential for worker exposures and contaminant releases.

Potential Life-Cycle Cost Savings of Need (in \$000s) and Cost Savings Explanation:

The estimated life-cycle cost savings associated with filling this need is \$10M. This estimate is based on an assumed savings of 1% of the total cost for excavation of 100 and 300 Area burial grounds of \$700M.

Cultural/Stakeholder Concerns: No stakeholder concerns are likely.

Other: None.

Current Baseline Technology: Conventional excavation equipment for removal with grizzlies for separation.

Cost: Budget forecast for 300 Area burial ground activities is about \$3.1M. Estimates to complete excavation and disposal of all the burial grounds in the 100 and 300 Areas is nearly \$700M. Occurrence of inefficiencies during the excavation process could have substantial cost impacts.

Waste: None

How Long It Will Take: Burial ground remediation activities in the 100 and 300 Areas are planned for next ten years.

End-User: Richland Environmental Restoration Project

Site Technical Point-of-Contact: Scott W. Petersen, BHI, (509) 372-9126; John April, BHI, (509) 372-9632; Ashur R. Michael, BHI, (509) 372-9074; Michael J. Truex, PNNL, (509) 376-5461

Contractor Facility/Project Manager: V. R. (Vern) Dronen, BHI, (509) 372-9075

DOE End-User/Representative Point-of-Contact: Arlene C. Tortoso DOE, (509) 373-9631; Robert G. Mcleod, DOE, (509) 372-0096; Glenn I. Goldberg, DOE, (509) 376-9552; Owen Robertson, DOE, (509) 373-6295